(1) TITLE OF THE INVENTION

RUPTURE TYPE OPENABLE BEVERAGE CONTAINER LID

(2) BACKGROUND TO THE INVENTION

Beverage type cans normally have rupturable opening arrangements. Once an opening is conventionally formed in a can the contents remain exposed to the ingress of undesired external matter. When closure is often achieved by way of a formation that is at all times exposed to the environment this gives rise to unhygienic conditions. Such closure mechanisms are also easily displaceable resulting in spillage from the opened container once unsealed. This invention thus, amongst others, deals with an improvement in hygienic conditions in the case of can closure once unsealed and to counteracting spillage from a can so closed off.

(3) FIELD OF THE INVENTION

This invention relates to a rupture type openable beverage container lid securable to a container body into forming a container and arranged for at least shielding the contents of such container, once in conventional use and after having been opened, against unwanted object ingress. Although not so limited the invention finds useful application for shielding canned beverage such as carbonated cold drinks, beer and the like.

(4) PRIOR ART DESCRIPTION

The closure of cans once opened has been proposed extensively in the prior art. Typically the following US patents can be cited i.e. numbers 4,979,635, 4,834,258, 4,442,950, 4,887,712, 4,605,141, 5,813,559, 5,779,087 and 6,059,137. None of these patents disclose a closure mechanism where the shielding member is located on the inside surface of the can. Their shielding members are thus at all times exposed to the environment resulting in unhygienic conditions of can usage once the contents is unsealed.

(5) BRIEF DESCRIPTION OF THE DRAWING

The invention is now described, by way of example, with reference to the accompanying drawings. In the drawings

Figure 1 shows in plan view a rupture type openable beverage container lid in the form of a conventional beverage can lid in the can unopened condition,

Figure 2 shows the lid of figure 1 in side elevation along section A-A in figure 1,

Figure 3 shows the lid in the figures 1 and 2 condition from below and thus the inside of the can once fitted,

Figure 4 stepwise shows the opening and shielding operation performable by way of the lid of the invention from above with respect to a can to which fitted, once in use, and

Figure 5 shows the opening and shielding operation performable by way of the lid from below and thus from the inside of the can once the lid is operatively fitted.

(6) DETAILED DESCRIPTION OF THE DRAWINGS

Referring to figures 1 to 3 of the drawings a rupture type openable beverage container lid in the form of a conventional beverage can lid is generally indicated by reference numeral 10. The lid 10 is conventionally securable to a can body.

The lid 10 comprises an opening tab 12 mounted to a centrally positioned rivet 14 and a shield 16 in the form of a sheet of flexible but firm material lying against the inside surface 18 of the wall 20 of the lid 10. The tab 12 is mounted to be both rockably pivoted relative to the rivet 14, as shown by arrow 22 in figure 2, and as conventionally arranged, in performing a can opening function, and to be swivelled about the axis 24 of the rivet 14 as shown by arrow 26 in figure 1.

The tab 12 is conventionally formed with a lip 28 extending leadingly with respect to a tab lifting portion 30. The tab 12 is thus used to form an opening into the wall of the lid 10 on being ruptured along a rupturable score line 32 in response to the lifting of the tab lifting portion 30 causing the lip 28 to by way of lever type action urge against the area of the wall 20 of the tab 12 extending within the score line 32 to tear it away from the remainder of the wall 20 of the lid 10. As the score line 32 does not form a closed loop but leaves a small unscored distance 34 at a rearward section, the tab wall material becoming torn away in the forming of a flap during forming the opening into a can 36 (as discussed in more detail below) on lifting of the tab 12, is not fully disengaged from the remainder of the wall 20. The flap 45 so formed is thus conventionally urged to one side into a can 36.

The shield 16 is secured to the tab 12 via a shaft 38 passing snugly through a bore (not shown in detail) along the rivet 14. Although not so limited the shaft 38 can extend through a bend 38.1 with its outer end section 38.2 being secured to the face of the lifting portion 32 of the tab 12 while its axially extending section 38.3 passes along the bore. The shield 16 is naturally secured to the inner end 38.4 of the shaft 38. The shaft 38 is of flexible material such as wire to enable its bending to accommodate the rocking action of the tab 12 in forming

the opening intermediate the score line 26 in the wall 20 of the lid 10. The shaft 38 is secured against release of especially gas at its inner end 38.4. This is achieved by sealing the protruding inner end portion of the shaft 38 in the bore in the rivet 14 prior to fitting the shield 16. It will be appreciated that full sealing is only required once the can 36 is still in its unopened condition. Once the can 36 has been opened full sealing is not required anymore. Breaking of the sealing on swivelling of the tab 14 in the direction of arrow 26 once the can 36 is opened is thus of no consequence.

As the inner surface 18 of the lid 10, as conventionally being securable to a can body, is shallowly dome shaped this has the effect of promoting the urging of the shield 16 against this surface 18 once carried on the shaft 38.

The central line 40 of the shield 16 lies parallel to the central line 42 of the tab 12. This has the effect of the tab 12 and the shield 16 lying in alignment with one another on opposite sides of the wall 20 of the lid 10. This serves as aid in indicating the positioning of the shield 16. It will be appreciated that depending on the shape of the shield 16 is need not necessarily have to lie in alignment with the tab 12.

While not specifically shown and also not being so limited, undesired swivelling of the tab 12 in the direction of arrow 26 prior to opening of a can 36 incorporating the lid 10 (that can cause undesired unsealing of the can) can for example be limited by securing the tab 12 via an easily releasable technique such as an adhesive bond to the upper face of the wall 20.

In also referring to figures 4 and 5 and in use, figures 4(a) and 5(a) shows the unopened condition of a can 36 incorporating the lid 10, as also corresponding with figures 1 and 3 respectively. As clearly shown in figures 5(a) and 3 the shield 16 is positioned away from the area within the score line 32 that will form the opening once the wall 20 is appropriately ruptured. The contents of a can 36 so fitted with the lid 10, are thus conventionally held against escape of any matter and especially gas in the case of pressurised beverages.

As shown in figures 4(b) and 5(b) opening of the can is conventionally achieve by lifting of the lifting portion 30 causing the lip 28 to form an opening 44 into the can 36 by tearing away the area within the score line 26. The flap 45 so formed is urged to one side into the can 36. This represents the conventional beverage consuming condition of the can 36. As the shaft 38 is of flexible material the upward movement of the lifting portion on opening of the can 36 is easily accommodated. Once used for forming the opening 44 the tab 12 is normally pushed up against the outer surface of the wall 20, as shown in figures 4(b) and 5(b).

If all the beverage is not forthwith consumed it is desirable to close off the opening 44 to protect the contents of the can 36 against the ingress of undesired matter such as insects and to in the appropriate case limit spillage. In referring to figures 4(c) and 5(c) this is achieved by swivelling the tab 12 in the direction of arrow 26 and specifically as indicated by reference numeral 26.1 owing to the blocking effect of the flap 42. This limits swivellable closure by the shield 16 in the one direction only into an opening covering condition. To this effect the lid 10 presents appropriate indications to shown the direction of opening covering and uncovering (not shown). Swivelling of the tab 12 has the effect of simultaneous swivelling of the shield 16 in the corresponding direction 36.2 in conjunction with the tab 12 up to a position of opening closure, as shown in figures 4(d) and 5(d).

Owing to the dome effect of the inner surface 18 the shield 16 is at all times maintained flush up against the wall 20. The can 36 is consequently closed off to a substantial extent that is in the appropriate case further enhanced by the pressure formed by gas still being released from the beverage. The pressurising effect will however remain insubstantial also owing to the removal of the sealing effect once the tab 12 and the shield 16 are swivelled and the sealing between the shaft 38 and the rivet 14 is broken. It must, however, be borne in mind that the object of the invention as specifically described is to close off the interior of a can 36 from ingress of unwanted matter and not to prevent escape of gas.

It is an advantage of the invention that closure of the interior of a container against unwanted ingress once opened is achieved by way of an arrangement that results in the closing off shield prior to first use remaining shielded within the container. The shield is consequently not exposed to external contamination such as handling, improving the hygienic condition of use of the can. The shield only becomes exposed to the environment once personally handled thus not practically affecting the hygienic advantage brought about by the invention. A further advantage is that spillage of beverage from the can is limited owing to the shield being urged from the inside against the surface 18. Movement of beverage will thus enhance the closure effect of the shield 16 as compared to outside shielding. Yet a father advantage is that some resultant pressure is in the appropriate case retained in the container owing to the partially sealable closure effect of the shield.